

# INDIANA FIRE ACADEMY TRAINING SYSTEM

**A Division of Indiana Homeland Security  
DRIVER OPERATOR PUMPER**



## **EVALUATOR HANDBOOK FOR THE DRIVER- OPERATOR PUMPER PRACTICAL SKILLS**

### **Reference Material:**

NFPA 1500, Fire Department Occupational Safety and Health

NFPA 1002, 2014 Ed.

JONES & BARTLETT LEARNING, Fire Apparatus Driver/Operator, 2<sup>nd</sup> Edition (Ch.1-14, 19)

# **INDIANA FIRE ACADEMY TRAINING SYSTEM**

## **A Division of Indiana Homeland Security DRIVER OPERATOR PUMPER**

### **Skill Sheet # 1, Preventative Maintenance**

**Perform the specified routine tests, inspections and servicing functions specified in the following list given a NFPA complaint engine/pumping apparatus and its manufacturer's specifications, so that the operational status of the apparatus is verified. (NFPA 1002, 2014 Ed.; 5.1.1)**

***Performance outcome: the ability to use hand tools, recognize system problems and correct any deficiency noted, with completed departmental forms, according to policies and procedures of Authority Having Jurisdiction.***

#### **Directions**

The lead evaluator will choose two tasks including one piece of equipment from task #11 to be demonstrated by the student on the day of the practical:

#### **Equipment & Materials**

- A fully equipped fire department pumper, the appropriate equipment to complete the assigned task and access to department policies and procedures.

<b>Task Steps</b>	
1.	Battery
2.	Braking system
3.	Coolant systems
4.	Electrical systems
5.	Fuel
6.	Hydraulic fluid
7.	Oil
8.	Tires
9.	Steering system
10	Belts
11	Tools, Appliances and equipment
12	Perform a routine inspection on water tank and other extinguishing agent levels in accordance with policies and procedures of authority having jurisdiction

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13	Perform a routine inspection on pumping systems in accordance with policies and procedures of authority having jurisdiction
14	Perform a routine inspection on foam systems in accordance with policies and procedures of authority having jurisdiction

Authority having jurisdiction will make apparatus check off sheets available for the visual check of the vehicle per their department policies and procedures. The candidate shall use the supplied check sheet while performing this JPR.

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### **(Continuation of Skill Sheet #1)**

Date of Inspection	Apparatus	Personnel Completing Inspection
<b>Engine Running</b>	<b>Item</b>	
<b>1</b>	Gauges-Ammeter, oil pressure, water temperature, air pressure vacuum	
<b>2</b>	Windshield wipers and washer fluid	
<b>3</b>	All window glass and reflectors	
<b>4</b>	Heater Defroster / Air Conditioning	
<b>5</b>	Brakes (foot and parking)	
<b>6</b>	Horns, sirens, emergency lighting (rotating and fixed)	
<b>7</b>	Engine Noises (normal, within manufacturer specifications)	
<b>8</b>	Clutch-Transmission shifting manual and/or automatic, drive train operation	
<b>9</b>	Steering	
<b>10</b>	Leaks-water, fuel and oil	
<b>11</b>	Head lights, tail stop and marker lights, emergency flashers	
<b>12</b>	Water tank/extinguishing agent level(s)	
<b>13</b>	Pumping systems (if applicable)	
<b>14</b>	Rapid dump system (if applicable)	
<b>15</b>	Foam systems (if applicable)	
<b>Engine Not Running</b>	<b>Item</b>	
<b>16</b>	Vehicle body	
<b>17</b>	Wheels, tires (tread and depth) and lugs	
<b>18</b>	Fuel tank and cap	
<b>19</b>	Brake hoses, air hoses, steering linkage, suspension	
<b>20</b>	Drain air tanks of moisture	
<b>21</b>	Compartments and doors, mounted equipment	
<b>22</b>	Engine transmission, rear end fluid levels	
<b>23</b>	Pump oil level (if applicable)	
<b>24</b>	Batteries, liquid levels and corrosion problems	
<b>25</b>	Portable equipment for operation and liquid levels	

**In the space below, explain any item(s) requiring service & any other important information:**


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### **Skill Sheet # 2, Driving/Operating**

**Given a fire department pumper, demonstrate safe, efficient operation of the vehicle upon jurisdictional street and highways under conditions outlined below in the performance section. (NFPA 1002, 2014 Ed.; 4.3.1)**

#### **Directions**

The candidate must complete all of the maneuvers while operating a pumper apparatus.

#### **Equipment & Materials**

- Operational Pumper Apparatus
- Instruction before beginning

<b>Task Steps</b>	
<b>1.</b>	Operate Passenger Restraint Devices
<b>2.</b>	Four left turns
<b>3.</b>	Four right turns
<b>4.</b>	A straight section of urban business street or a two-lane rural road at least 1 mile in length
<b>5.</b>	One through-intersection and two intersections where a stop has to be made
<b>6.</b>	One curve, either left or right
<b>7.</b>	One railroad crossing (if unavailable, demonstrate procedures)
<b>8.</b>	A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes. (if unavailable, demonstrate procedures)
<b>9.</b>	A downgrade steep enough and long enough to require down-shifting and braking (if unavailable, demonstrate procedures)
<b>10</b>	An upgrade steep enough and long enough to require a gear changing to maintain speed (if unavailable, demonstrate procedures)
<b>11</b>	One underpass or a low clearance or bridge (if unavailable, demonstrate procedures)

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# **INDIANA FIRE ACADEMY TRAINING SYSTEM**

## **A Division of Indiana Homeland Security DRIVER OPERATOR PUMPER**

### **Skill Sheet #3, Driving/Operating**

**The student, given a fire department pumper apparatus, shall demonstrate safe, efficient operation of the pumper apparatus within an established obstacle course to measure abilities and judgments in maneuvering within confined areas simulating general driving. (NPFA 1002, 2014 Ed.; 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6)**

#### **Directions**

The candidate must complete all of the maneuvers while operating a pumper apparatus. Student shall verify that all occupants are properly restrained.

#### **Equipment & Materials**

- Operational Pumper Apparatus
- Spotter (where noted)
- Safety Vests Recommended for Ground Personnel
- Traffic Control (if applicable)
- Measuring Device and Control Devices (cones/barricades)

<b>Task Steps</b>	
<b>1.</b>	The candidate shall back a mobile water supply apparatus from a roadway into restricted spaces on both sides of the vehicle, given a safety spotter during backing, and restricted spaces (12' width) requiring 90 degree right hand and left hand turns from the roadway, so that the vehicle is parked within the restricted areas without having to stop and pull forward and without striking obstructions. (Alley Dock, 4.3.2) ** ADD SKETCH **
<b>2.</b>	The candidate shall maneuver a mobile water supply apparatus around obstructions on a roadway while moving forward and in reverse so that the vehicle is maneuvered through obstructions, without stopping to change direction of travel and without striking the obstructions. Safety spotter during backing. (Serpentine, 4.3.3) ** ADD SKETCH **
<b>3.</b>	The candidate shall turn a mobile water supply apparatus 180 degrees within a confined space small enough that a U turn cannot be accomplished without stopping and backing up. The vehicle must be turned 180 degrees without striking obstructions within the given space. Safety spotter during backing. (Confined Space Turnaround, 4.3.4) ** ADD SKETCH **

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4.	The candidate shall maneuver a mobile water supply apparatus in areas of restricted horizontal and vertical clearances so that the operator accurately judges the ability of the vehicle to pass through the openings of that no obstructions are struck. (Diminishing Clearance, 4.3.5) ** ADD SKETCH **
5.	The candidate shall operate a mobile water supply apparatus by using defensive techniques under simulated emergency conditions, so that control of the vehicle is maintained. (4.3.6)

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### **Skill Sheet # 4, Operations**

The candidate, given a fire department pumper, shall demonstrate positioning the apparatus at a water source, placing the pump in service for pumping operations, auxiliary cooling systems, and operation of pressure control and vehicle safety devices. (NFPA 1002, 2014 Ed.; 5.2.1)

Performance outcome: the candidate shall safely and efficiently complete all procedures.

#### **Equipment & Materials**

- Fire department pumper

<b>Task Steps</b>	
1.	The candidate shall maneuver the apparatus to the water source, bringing the apparatus to a full stop and allow the engine to slow to idle speed
2.	Engage the fire pump per manufacturer's recommendations
3.	Properly position wheel chocks
4.	Open tank to pump valve
5.	<b>Describe manual pump engagement procedures</b>
6.	<b>Describe operation of transfer valve (if equipped)</b>
7.	<b>Describe operation of electronic pressure/throttle controller (if equipped)</b>
8.	<b>Describe operation of auxiliary cooling system (if equipped)</b>
9.	Ensure apparatus water tank is full
10.	Reset pressure control devices
11.	Disengage the fire pump per manufacturer's recommendations
12.	Open the pump drain (if required by AHJ)
13.	Load and secure all equipment
14.	Remove wheel chocks and secure compartment doors



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\*\* Evaluator will state to the candidate the task step in bold

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### **Skill Sheet # 5, Operations**

**Produce effective hand and master streams, given the sources specified in the following list, so that the pump is safely engaged, all pressure control and vehicle safety devices are set, the rated flow of the nozzle(s) is achieved and maintained, and the apparatus is continuously monitored for potential problems. (NFPA 1002, 2014 Ed.; 5.2.1)**

Performance outcome: the candidate, given a fire department pumper, shall demonstrate pump operations transition from an internal water tank to a pressurized water source for supplying hose lines that produce an effective fire stream and calculate the correct discharge pressure.

#### **Equipment & Materials**

- Determined by lead evaluator

<b>Task Steps</b>	
1.	Open the tank to pump valve fully
2.	Open the correct discharge valve for hand line and adjust the throttle to correct discharge pressure to achieve rated flow of hand line nozzle (within +/- 5 psi)
2.	Ensure connections to pressurized water source is completed appropriately
3.	Open correct intake valve from pressurized water source and close tank-to-pump valve.
4.	Adjust hand line discharge to maintain correct pressure for rated flow of hand line nozzle. (within +/- 5 psi)
5.	Set the pressure control device to the operating pressure (if equipped)
6.	<b>Candidate shall identify residual incoming pressure.</b>
7.	Open the correct valve for master stream and adjust the throttle to correct discharge pressure to achieve rated flow of master stream nozzle (within +/- 5 psi)
8.	Adjust hand line discharge pressure. (within +/- 5 psi)
9.	Set the pressure control device to the operating pressure (if equipped)
10	<b>Candidate shall adjust pump pressure to account for elevation change described by evaluator.</b>

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11	<b>Candidate shall identify residual incoming pressure and identify number of equal lines or additional gpm that can be added.</b>
12	Monitor system for malfunction.
13	Demonstrate safe evolution shutdown procedures

\*\* Evaluator will state to the candidate the task step in bold

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# **INDIANA FIRE ACADEMY TRAINING SYSTEM**

## **A Division of Indiana Homeland Security DRIVER OPERATOR PUMPER**

### **Skill Sheet #6, Operations**

**Produce effective hand and master streams, given the sources specified in the following list, so that the pump is safely engaged, all pressure control and vehicle safety devices are set, the rated flow of the nozzle(s) is achieved and maintained, and the apparatus is continuously monitored for potential problems. (NFPA 1002, 2014 Ed.; 5.2.1)**

Performance outcome: the candidate, given a fire department pumper, shall demonstrate pump operations from a static water source (drafting) for supplying hose lines that produce an effective fire stream and calculate the correct discharge pressure.

#### **Equipment & Materials**

- Determined by lead evaluator

<b>Task Steps</b>	
1.	<b>Identify the minimum water level of the static source</b>
2.	<b>Identify the maximum lift at the test site</b>
3.	<b>Identify the maximum priming time of the pumper</b>
4.	Ensure appropriate strainer and supply hose is connected
5.	Prime the pump and maintain draft without flow interruptions for duration of evolution
6.	<b>Identify problems associated with a failure to prime the pump</b>
7.	Open the correct discharge valve for hand line and adjust the throttle to correct discharge pressure to achieve rated flow of hand line nozzle (within +/- 5 psi)
8.	Set pressure control device
9.	Open the correct valve for master stream and adjust the throttle to correct discharge pressure to achieve rated flow of master stream nozzle (within +/- 5 psi)
10	Adjust hand line discharge pressure. (within +/- 5 psi)
11	Set pressure control device
12	<b>Candidate shall adjust pump pressure to account for elevation change described by evaluator.</b>
13	Monitor system for malfunction
14	Demonstrate safe evolution shut down procedures

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\*\* Evaluator will state to the candidate the steps in bold

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**Skill Sheet #7, Operations**

**Pump a supply line of 2 ½ in or larger, given a relay pumping evolution the length and size of the line and the desired flow and intake pressure, so that the proper pressure and flow are provided to the next pumper in the relay. (NFPA 1002, 2014 Ed.; 5.2.2)**

Performance outcome: The candidate, given a water source, fire department pumper, supply lines, and attack pumper, shall provide adequate water volume and pressure without interruption. Length and size of supply line to be determined by lead Evaluator.

**Equipment & Materials**

- To be determined by lead evaluator

Task Steps	
1.	<b>Identify the source and attack pumper</b>
2.	<b>Identify and secure a water supply at source pumper (static / pressurized)</b>
3.	<b>Identify the static water source pressure (if using pressurized source)</b>
4.	Ensure connected supply line(s) between source and attack pumper
5.	Communications established and maintained with attack pumper
6.	Open the correct discharge valve to supply attack pumper and adjust throttle to the correct discharge pressure (+/- 5 psi)
7.	Set pressure control device
8.	Maintain flow to attack pumper without interruptions
9.	Monitor systems for malfunction.
10.	Demonstrate safe evolution shut down procedures

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## **Skill Sheet # 8, Operations**

**Produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided. (NFPA 1002, 2014 Ed.; 5.2.3)**

### **Directions**

The candidate, given foam and foam producing equipment, shall demonstrate the ability to operate foam-proportioning equipment, connect foam stream equipment and produce an effective fire stream supplied with foam.

### **Equipment & Materials**

- A supply of foam concentrate or substitute
- Compressed air foam system or foam injection system
- Inline / Portable / Bypass Eductor
- Fog nozzle or foam nozzle

Authority having jurisdiction will determine type of system to be used for testing

<b>Task Steps</b>	
1.	<b>Identify type of foam producing equipment being utilized</b>
2.	Prepare foam-producing equipment for operation
3.	Adjust throttle to correct pump discharge pressure for foam-producing equipment being utilized
4.	<b>Identify correct foam concentrations for a specific type of fire, to be determined by the lead evaluator</b>
5.	Produce an effective foam supplied fire stream
6.	<b>Identify limitations of foam type being utilized</b>
7.	<b>Demonstrate shut down procedures</b>
8.	<b>Identify proper cleaning or flushing procedures for equipment utilized, per the manufacture recommendation</b>

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## **Skill Sheet # 9, Operations**

**Supply water to fire sprinkler system/standpipe, given specific information and a fire department pumper, so that water is supplied to the system at the proper volume and pressure. (NFPA 1002, 2014 Ed.; 5.2.4)**

Performance outcome: The candidate, given appropriate supply line(s) for a fire department connection, makes a connection to the FDC, and supplies the system to provide adequate fire flow for sprinkler or standpipe operations. Candidate must show an effective fire stream and calculate the correct pump discharge pressure. (Lead evaluator must select fire sprinkler or stand pipe system)

### **Equipment & Materials**

- To be determined by lead evaluator

<b>Task Steps</b>	
1.	Identify static pressure ____ psi
2.	Place transfer valve in ____ (if applicable)
3.	Adjust throttle to correct pump discharge pressure for system.
4.	Set pressure control device
5.	<b>Candidate shall adjust pump pressure to account for elevation change described by evaluator.</b>
5.	Monitor systems for malfunction
6.	Demonstrate safe evolution shut down procedures

\*\* Evaluator will state to the candidate the steps in bold

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